

# Knowledge, attitude and practice of general population in Arar towards Bell's palsy

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**ABSTRACT**

**Background:** Knowledge and attitude of General Population towards Bell's palsy vary greatly from place to another and depending on various aspects as sociodemographic aspects. **Objectives:** To assess knowledge, awareness and attitude of general Saudi population in Arar towards symptoms, causes and management of Bell's palsy. **Methods:** A cross sectional study design was adopted. The study was carried out in Arar, Northern Province in Saudi Arabia, during a period of two months from 1 July to 31 September, 2021. **Results:** 87.9% of the participants had heard about Bell's palsy before. All participants who heard about Bell's palsy before or knew any of its symptoms got their information either from family and friends, newspaper, medical staff, or social media. Females had heard about Bell's palsy more than males did with 70.9% in females compared to 29.1% in males ( $P= 0.001$ ). More than half of the participants (52.6%) who heard about Bell's palsy were from 19-30 years ( $P=0.001$ ). University students or with higher education who heard about Bell's palsy were 59.9% of the total population ( $P>0.05$ ). Also, 69.0% of the people heard about Bell's palsy were females ( $P= 0.001$ ). **Conclusion:** Knowledge and attitude of Bell's palsy among population in Arar, KSA was not satisfactory as people's knowledge was limited to some extent.

**Keywords:** Bell's palsy, idiopathic facial palsy, facial nerve, knowledge, awareness, attitude, Arar, Saudi Arabia.

**1. INTRODUCTION**

Bell's palsy is a category of impermanent facial paralysis or dimness on one half of the face. It is the result of dysfunction of the facial nerve that controls the muscles on one half of the face, comprising those that adjust the blinking and closure of the eyes and facial languages including smiling (Mustafa & Suleiman, 2020). Acute idiopathic paralysis of the peripheral facial nerve is a communal illness with any early occurrence of 15 to 30 per 100,000 populations. Most cases get a full recovery, but about 15-30% remained with varying degrees of paralysis (Heckmann et al., 2019). There are numerous conceivable reasons of Bell's palsy, nonetheless the etiology left overs unclear.

The word Bell's palsy must be circumscribed to idiopathic facial palsy (Zhang et al., 2020). It could upset anyone, of any gender or age group; nonetheless its occurrence appears to be greater in the 15-45 age groups. Risk factors for Bell's palsy comprise gestation, preeclampsia, obesity, high blood pressure, diabetes, and upper respiratory diseases (Fox et al., 2019).

Bell's palsy is characterized by the spontaneous acute onset of a unilateral or isolated peripheral facial palsy, no history of neurologic features. The outcome of Bell's palsy is always good, nonetheless corticosteroids suggestively upsurge the probability of cure (Reich, 2017). Most scientists believe that reactivating an existing (inactive) viral infection can cause the disorder. Impaired immunity due to stress, lack of sleep, physical trauma and mild illness are the most likely triggers (Besedovsky et al., 2019). When the facial nerve becomes swollen and inflamed in response to infection, it creates pressure on the fallopian tube, resulting in blood restriction. In some mild cases with rapid recovery, only the myelin sheath is damaged (Miller et al., 2017). Information and attitude of overall populace towards symptoms, causes and risk factors Bell's palsy may help in paid discovery and management of cases to reach a better prognosis (Al Meslet et al., 2019).

A study conducted in Riyadh, Saudi Arabia to assess the awareness and knowledge of Bell's palsy symptomatology, complications, and management among the general population reported that; (85.0%) were aware of Bell's palsy, and friends were the main source of their awareness (91.8%). The mean overall knowledge score was  $9.65 \pm 2.57$ . High score of awareness was meaningfully related to older age and the use of the internet as a source of information (Almutairi et al., 2020). A cross sectional study to investigate the awareness of the general population toward Bell's palsy, its etiology, symptoms, and treatment in five main regions of Saudi Arabia and found that; 73.6% of participants heard of Bell's palsy were 73.6%, and the sources were family/friends (28.6%) and social media (27.4%). Major reported causes of Bell's palsy included viral (52.9%) and idiopathic (51.7%) symptoms. Majority of participants identified unilateral facial weakness (41.7%) as a symptom, and physiotherapy (63.9%) and steroids (49.6%) as potential therapies (Al Amarani et al., 2020).

Another cross sectional study in Alhasa region of Saudi Arabia reported that level of knowledge about Bell's palsy risk factors and its treatment was poor in Al-Hasa. For that, it requires further attention from the healthcare workers, practitioners and medical students to raise the awareness about this disease (AlYahya et al., 2018).

### **Aim of the study**

To assess knowledge, and attitude of general Saudi population in Arar towards symptoms, causes and management of Bell's palsy.

## **2. METHODS & PARTICIPANTS**

### **Study design, setting and period**

A cross sectional study design was adopted. The study implemented on the general population attending 5 randomly selected primary health care centers (PHC) in Arar city, Northern Province of Saudi Arabia. Data was collected during a period of three months from 1 July to 31 September, 2021.

### **Inclusion criteria and Exclusion criteria**

The study will include all Saudi adults who aged between 18 and 65 years was included in the study. Non-Saudi subjects, older than 65 or younger than 18 years, were excluded.

### **Sample size**

The least sample extent for this study was calculated concerning Swinscow, as follows:

$$n = Z^2 \times P \times Q/D^2$$

Where:

n: Intended number of the sample

Z: The z-value for the designated confidence level ( $1 - \alpha$ ) = 1.96.

P: An estimated prevalence of having knowledge as 50% since there is no specific figure for that

Q:  $(1 - 0.50) = 50\%$ , i.e., 0.50

D: The extreme satisfactory error = 0.05.

So, the intended least sample size was:

$$n = (1.96)^2 \times 0.50 \times 0.50 / (0.05)^2 = 384$$

After adding 10% to guard against the incomplete questionnaires, the sample size was 420 participants.

**Sampling Technique**

The participants were selected using the systematic random sampling technique. Data was collected from all adult attendees of 5 randomly selected primary health care centers (PHC) in Arar city. We included all the population attending the PHC centers for any cause, not only the patients. After identifying the first participant randomly, then every 2<sup>nd</sup> attendant was interviewed to be included in the study till the required sample is covered. Data were poised by private interviews with the respondents and filling out questionnaires.

**Data collection tool**

A pre-designed questionnaire was used for data collection. Questions regarding socio-demographic characteristics of the participants (age, wedded status, scholastic level, work and residence), as well as knowledge about Bell's palsy symptoms and causes along with risk factors and management of it. Data collectors gave a brief introduction explaining the idea of the research to participants. The questionnaire included the written consent form, to be signed by the participants.

**Data management and analysis plan**

The data was analyzed by means of the SPSS Inc. (Chicago, IL, USA) version 23. Percentages were given for qualitative variables. The determinant factors were determined using the Chi-square test. P-value considered significant if less than 0.05.

**Ethical considerations**

Approval was obtained by the Research Ethics Committee of Northern Border University, Arar, KSA (HAP-09-A-0, with the letter number (30/42/H). Data will be anonymous for patient confidentiality. Use of these anonymous data in this research project was reviewed and approved by the research ethics committee. The collected data was kept safely in a password protected computer.

### 3. RESULTS

The study included 1143 participant, 354 were men (31%) and 789 females (69%). 219 (19.2%) of the respondents aged 18 years or less, 591 (51.7%) aged 19-30 years old, 267 (23.4%) aged 31-50 years old, 66 (5.8%) aged 51-65 years old. According to educational level, 99 (8.7%) were uneducated, 369 (32.3%) were primary or secondary school, and 675 (59.1%) were university students or had a university degree. 1092 (95.5%) were Saudi, and 51 (4.5%) were Non-Saudi (Table 1). 1005 (87.9%) participants had heard about Bell's palsy before, and 138 (12.1%) participants did not hear about it before. All participants who heard about Bell's palsy before or knew any of its symptoms had their source of information either from family and friends, newspaper, medical staff, or social media (table 2).

**Table 1** Sociodemographic characteristics of the studied population (N=1143)

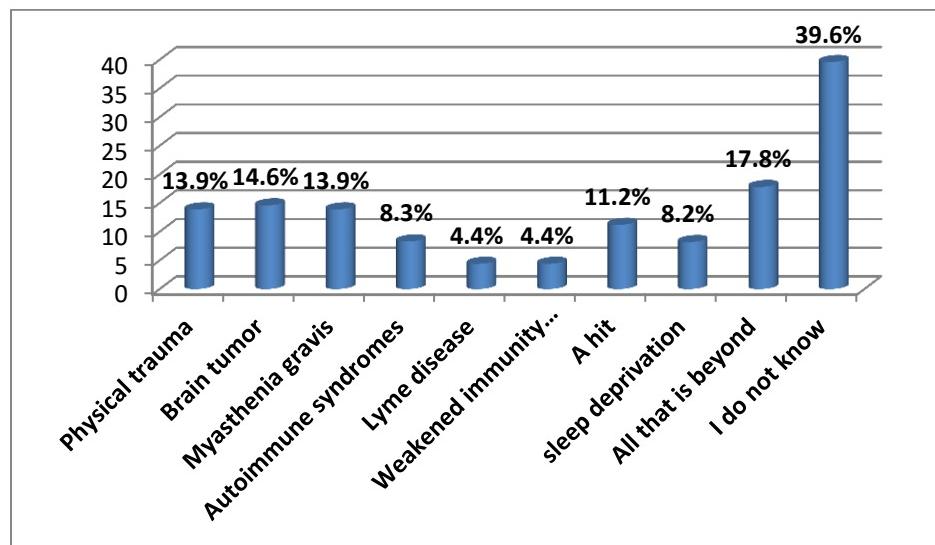
	Frequency	Percent
<b>Gender:</b>		
Male	354	31.0
Female	789	69.0
<b>Age:</b>		
18 or less	219	19.2
30-19	591	51.7
50-31	267	23.4
65-51	66	5.8
<b>Social status:</b>		
Singles	564	49.3
Married	462	40.4
Separated	45	3.9
Widower	72	6.3
<b>Educational level:</b>		
Uneducated	99	8.7

Primary or Secondary	369	32.3
University	675	59.1
Working status:		
Work	441	38.6
NoWork	702	61.4
Nationality:		
Saudi	1092	95.5
Non-Saudi	51	4.5

**Table 2** Knowledge and source of information of participants about Bell's palsy (N= 1143)

	Frequency	Percent
Heard of Bell's Palsy		
Yes	1005	87.9
No	138	12.1
Source of your information about Bell's palsy		
family and friends	423	37.0
Newspaper	36	3.1
Medical staff	168	14.7
Social media	288	25.2
I didn't hear about it	228	19.9

Table 3 and Figure 1 shows the causes of Bell's palsy by the studied participants were physical trauma by 13.9%, brain tumor 14.6%, myasthenia gravis 13.9%, autoimmune syndromes 8.3% lyme disease 4.4%, weakened immunity from stress 4.4%, a hit 11.2%, sleep deprivation 8.2%, i do not know 39.6% and all that is beyond 17.8%. Table 4 shows the relation between sociodemographic variables and knowledge of Bell's palsy. Females had heard about Bell's palsy more than males did with 70.9% in females compared to 29.1% in males ( $P= 0.001$ ). Age P value is 0.001 as shown in the results that more than half of the participants (52.6%) who heard about Bell's palsy was from 19-30 years. Educational level P value is 0.144 as shown by the study that university students or with higher educational level who heard about Bell's palsy were 59.9% of the total population who heard about Bell's palsy. Gender also affect knowledge, practices, and attitude towards Bell's palsy, as 69.0% of the people heard about Bell's palsy were females ( $P= 0.001$ ).

**Figure 1** Causes of Bell's palsy by the studied participants in Arar, KSA

**Table 3** Knowledge of participants about Bell's palsy risk factors, causes, complications and other variables about Bell's palsy (N=1143)

	Frequency	Percent
Bell's palsy is facial paralysis or weakness on half of the face		
Yes	1032	90.3
No	111	9.7
Effect of Bell's Palsy		
Paralysis of one arm	6	.5
Paralysis on half of the face	789	69.0
Weakness on half of the body	132	11.5
Other	33	2.9
I do not know	183	16.0
Symptoms of Bell's palsy		
Pain around jaw or in ear in the affected area	27	2.4
Rapid onset of mild weakness of complete paralysis on half of the face	213	18.6
Facial drooping and difficulty forming expressions of the face as closing eyes	324	28.3
Changes in the amount of tears and saliva	3	.3
Delirium	21	1.8
Headache	9	.8
loss of taste	9	.8
All that is beyond	348	30.4
I do not know	183	16.0
Nothing above	6	.5
Risk factors of Bell's palsy		
Hypertension	129	11.3
Obesity	9	.8
Eclampsia	75	6.6
Pregnancy	3	.3
Diabetes	60	5.2
Upper respiratory infection	123	10.8
All that is beyond	282	24.7
I do not know	462	40.4
Nerve affected by Bell's disease		
The third	33	2.9
Fifth	93	8.1
Seventh	630	55.1
I do not know	387	33.9
Causes of Bell's palsy (there is overlapping)		
Physical trauma	159	13.9
Brain tumor	168	14.6
Myasthenia gravis	159	13.9
Autoimmune syndromes	96	8.3
Lyme disease	51	4.4
Weakened immunity from stress	51	4.4
A hit	129	11.2
sleep deprivation	93	8.2
I do not know	453	39.6

All that is beyond	204	17.8
Complications of Bell's palsy		
Incomplete recovery of weak facial muscles resulting in difficulty speaking or forming words (dysarthria)	195	17.1
Partial or complete blindness	18	1.6
Involuntary movements of the mouth when trying to blink the eyes	339	29.7
Irreversible damage to the facial nerve	111	9.7
Abnormal growth of nerve fibers	33	2.9
I do not know	447	39.1

**Table 4** Relation between sociodemographic variables and knowledge of Bell's palsy

		Knowledge of Bell's palsy		Total (N=1143)	P value
		Yes	No		
Gender:	Male	300	54	354	0.001
		29.1%	48.6%	31.0%	
	Female	732	57	789	
		70.9%	51.4%	69.0%	
Age:	18 or less	168	51	219	0.001
		16.3%	45.9%	19.2%	
	19-30	543	48	591	
		52.6%	43.2%	51.7%	
	31-50	255	12	267	
		24.7%	10.8%	23.4%	
Educational level:	51-65	66	0	66	0.144
		6.4%	0.0%	5.8%	
	Uneducated	90	9	99	
		8.7%	8.1%	8.7%	
	Primary or Secondary	324	45	369	
		31.4%	40.5%	32.3%	
	University	618	57	675	
		59.9%	51.4%	59.1%	

#### 4. DISCUSSION

Knowledge and attitude of General Population towards Bell's palsy vary greatly from place to another and depending on various aspects as sociodemographic aspects. Bell's idiopathic palsy could result in severe and, occasionally permanent, mutilating and emotionally difficult facial paralysis (Zhang et al., 2020). The knowledge of the population was shocking, as 1005 (87.9%) participants had heard about Bell's palsy before, and 138 (12.1%) participants did not hear about it before. All participants who heard about Bell's palsy before or knew any of its symptoms had their source of information either from family and friends, newspaper, medical staff, or social media. A study was made to measure the knowledge, practice, and attitude of Bell's palsy among dental students in Chennai, a survey consisting of 17 questions with respect to knowledge and awareness of Bell's palsy. Information was collected through Google form. The information of anatomy, diagnosis, and treatment was satisfactory and recommend that they have adequate awareness. From the study results 69% of the individuals claimed that Bell's palsy affects the facial nerve. About three-quarters (75%) of the individuals claimed that Bell's palsy disturbs one half of the face and 25% opposed it. More than half of the participants (60%) said that recovery period of immediate type of facial palsy is 4 hours only (Naveed & Tasleem, 2014).

Another study survey was conducted to estimate the information of Bell's palsy about the causes, sign symptoms, and treatment amongst 120 students of pharmacy, arts, and science faculties. Out of the 120 participants, only 61.67% students have heard about

Bell's palsy before. Only 26.67% students had known the causes, 46.67% had known the signs & symptoms on animals scale & only 33.3% have some knowledge and information about home-based treatments. From this survey we conclude that although the educational level affects knowledge about Bell's palsy but even further steps should be taken regarding the knowledge about Bell's palsy amongst university students generally and medical students especially (Reich, 2017).

A study aimed to evaluate understanding of therapists' perceptions and attitudes towards facial palsy rehabilitation treatment and to observe whether therapists could be grouped based on the observed perceptions and attitudes. Thirteen interviews were made among a determined sample of 127 therapists. Seven themes were highlighted from the interviews: treatment goals, therapy content, measurement instruments, indications, factors influencing success, emotional support, and cooperation with colleagues (van Veen et al., 2021). A 2-group structure made up of a positive class and a negative class was found to fit the survey data. No distinction could be made concerning therapists' features. Significant difference in practices was found amongst therapists; thereby therapists were classified into 2 groups. This study suggests that even among therapists, understandings and practices regarding Bell's palsy vary greatly based on several aspects which should be investigated (Roback, 2000).

Regarding relationship between knowledge and other sociodemographic variables; females had heard about Bell's palsy more than males did with 70.9% in females compared to 29.1% in males ( $P= 0.001$ ). Age P value is 0.001 as shown in the results that more than half of the participants (52.6%) who heard about Bell's palsy was from 19-30 years. Educational level P value is 0.144 as shown by the study that university students or with higher educational level who heard about Bell's palsy were 59.9% of the total population who heard about Bell's palsy. Gender also affect knowledge, practices, and attitude towards Bell's palsy, as 96.2% of the people heard about Bell's palsy were Saudis ( $P= 0.001$ ). When exploring those previously mentioned studies and our cross-sectional study and matching those study results, we conduct that age, gender, educational level, and nationality are highly related to knowledge, attitude, and practices of Bell's palsy especially in Arar, KSA.

## 5. CONCLUSION AND RECOMMENDATIONS

Knowledge and attitude of Bell's palsy among population in Arar, KSA was not agreeable as people's knowledge about causes, symptoms treatment and complications were limited. We recommend that more workshops, webinars, awareness campaigns, and training courses should be organized to raise the knowledge and attitude of population and medical students about Bell's palsy disease.

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### Author Contributions

All the authors contributed evenly with regards to data collecting, analysis, drafting and proofreading the final draft.

### Funding

This study has not received any external funding.

### Conflict of Interest

The authors declare that there are no conflicts of interests.

### Data and materials availability

All data associated with this study are presented in the paper.

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